

Scope

1. This method describes a standard procedure for the calibration and certification of the ten-foot, four-wheel rolling straightedge.

Apparatus

2. (a) *ten-foot, four-wheel rolling straightedge.*
- (b) *Wheel Blocks* - Two wheel blocks of specified dimensions, with levels and level adjusting screws as indicated in Figure 1.

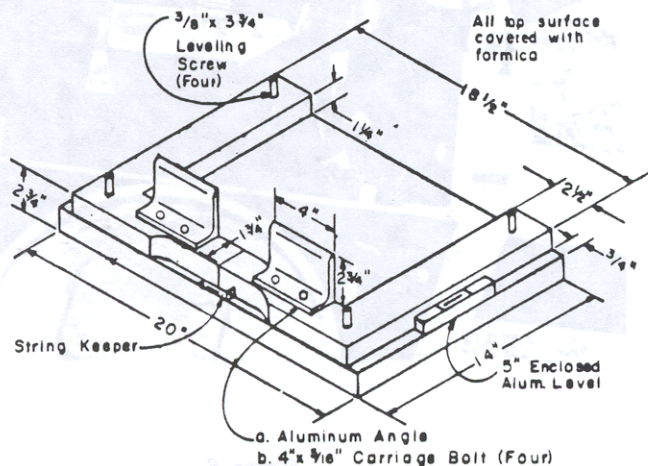


Figure 1

(c) *Calibration Base* - A 5" x 5" x 1" metal plate with an adjustable, flathead bolt 1 1/8 in. long located in the center of the plate as indicated in Figure 2.

(d) *Steel Plates* - Two 5" x 5" x 1/8" steel plates.

(e) *String-line* - Approximately 30 feet of 50+ pound test, multifilament line.

(f) *Calibration Plates* - Two sets of plates, each set containing one plate each of the following thicknesses: 1/16 inch, 1/8 inch, 3/16 inch, and 1/4 inch all with a tolerance of ± 0.006 inch.

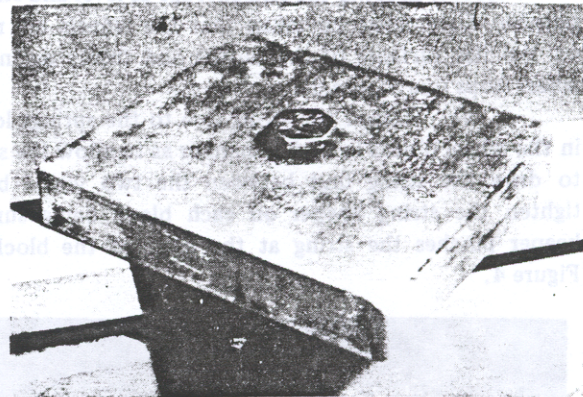


Figure 2

Frequency

3. The straightedge shall be calibrated and certified at the district laboratory whenever any of the following conditions occur: a) at least once per 30 days during use; b) whenever preset minimum tolerances must be adjusted; c) at any time during use that the straightedge is determined to be out of calibration.

Procedure

4. (a) Inspect the straightedge to ensure that it is in satisfactory working condition, checking all points listed on the certification form shown in Figure 10.

(b) Check to be certain that the Allen screws which secure the pointer are tight and that the pointer is free from play.

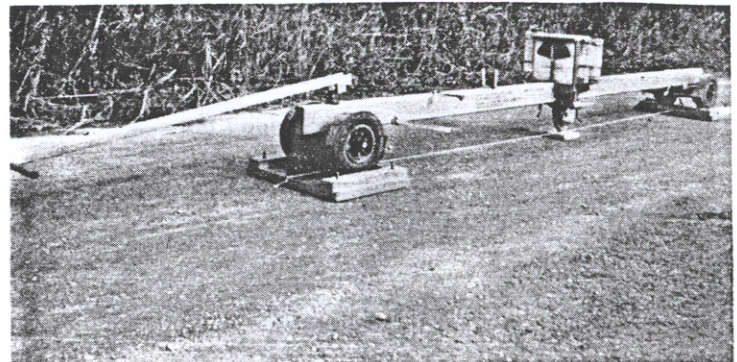


Figure 3

(c) Lock the scale wheel in its uppermost position.

(d) Place the wheel blocks on a smooth, level surface with the open ends of the blocks facing away from each other. Place the wheels of the straightedge in the wheel blocks, keeping the straightedge as level and stable as possible. Care must be taken that the wheels are resting on the flat surfaces of the blocks and firmly against the wheel stops (see Figure 3).

(e) Attach the string line to the springs located in the wheel blocks in such a manner as to allow the springs to draw the string taut between the two wheel blocks; tighten the string keeper on each block being sure the keeper pinches the string at the edge of the block. See Figure 4.

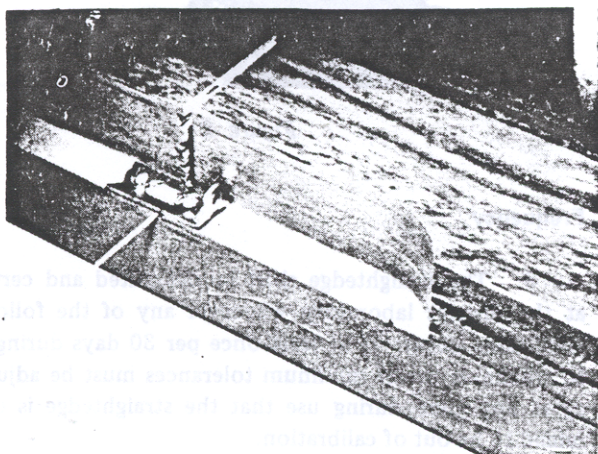


Figure 4

(f) Level the wheel blocks by means of the adjustable screws located at each corner of the blocks.

(g) Place the calibration base in position under the scale wheel. Raise or lower the flat-head bolt until the topmost part of the bolt head just comes in contact with the bottom of the string line. See Figure 5.

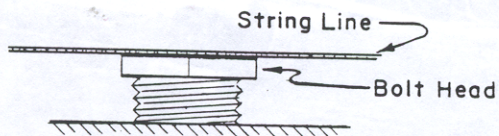


Figure 5

(h) Move the string line to the side and lower the scale wheel until it rests upon the head of the bolt. At this point, the dial face of the straightedge should read "zero". If the dial fails to zero, check the procedure and if necessary, repeat procedural steps (a) through (h).

(i) If, after steps (a) through (h) have been repeated several times, the straightedge fails to zero, set the pointer to zero using one of the following adjustments:

(1) *Units with Adjustable Gear Drive* - To adjust units with square face and adjustable gear, remove the top of the case, loosen the gear as shown in Figure 6. Set the pointer to zero, tighten the gear, and replace the top of the case.

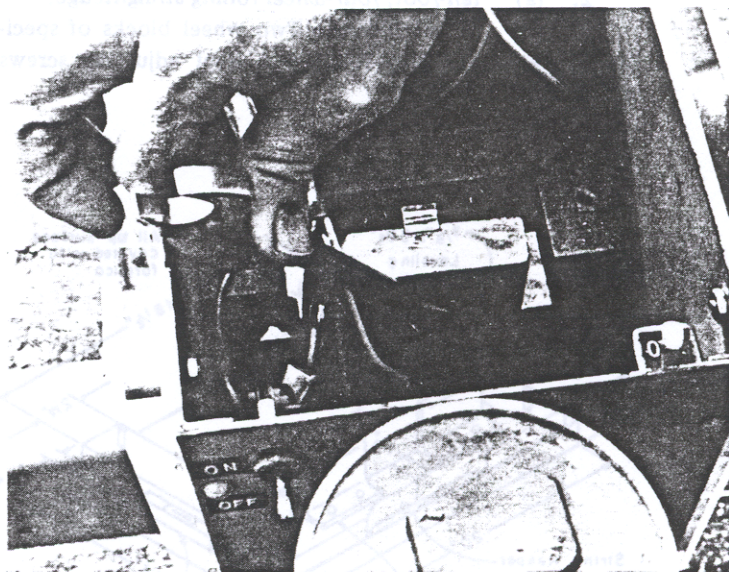


Figure 6

(2) *Unit with Adjustable Face* - To adjust units with round face and non-adjustable gear loosen the two bolts located in slots cut through the face of the dial; rotate the dial face until the pointer reads zero; retighten the screws. (see Figure 7.)

(j) After the scale has been set on zero, the increments on the dial face may be checked for the high and low readings. The high readings are checked by placing the various calibration plates between the bolt head of the calibration base and the scale wheel. If the zero has been properly set, the 1/8 in. plate placed between the bolt head and the scale wheel will result in a 1/8 in. high reading on the dial face; the 3/16 and 1/4 in. plates will result in 3/16 and 1/4 inch high readings accordingly.

ROLLING STRAIGHTEDGE CERTIFICATION

Tag ID Number:

Project Number:

Date:

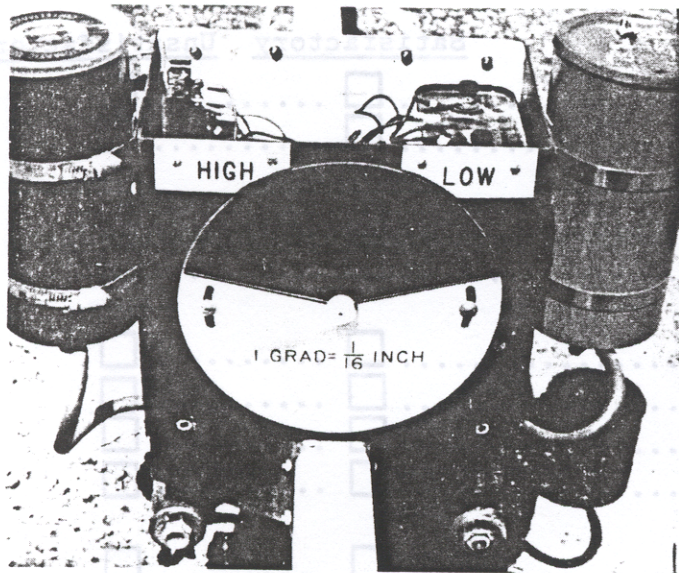


Figure 7

(k) The low reading may be checked by adjusting the bolt head of the calibration base downward with a calibration plate between the bolt head and the scale wheel. Lower the bolt head until the reading is on zero. Remove the calibration plate to check the low reading. If a 1/8 in. plate is used, the dial reading will be 1/8 in. and so on.

(l) To adjust the high limit on the straightedge, place one calibration plate, equal in thickness to the surface tolerance, under the scale wheel and adjust the bolt head until the reading is on zero. Add a second calibration plate of the same thickness under the scale wheel so that the dial reads the high tolerance. Turn the straightedge on, loosen the solenoid adjustment block as shown in Figure 8; adjust the block so that the solenoid will operate with any further movement of the block; then tighten the block. Repeat the procedure on the low limit solenoid with both calibration plates removed so that the dial is reading the low tolerance. The adjustment can be checked by removing the calibration base and manually moving the scale wheel beyond the tolerance limits and verifying that the solenoids operate.

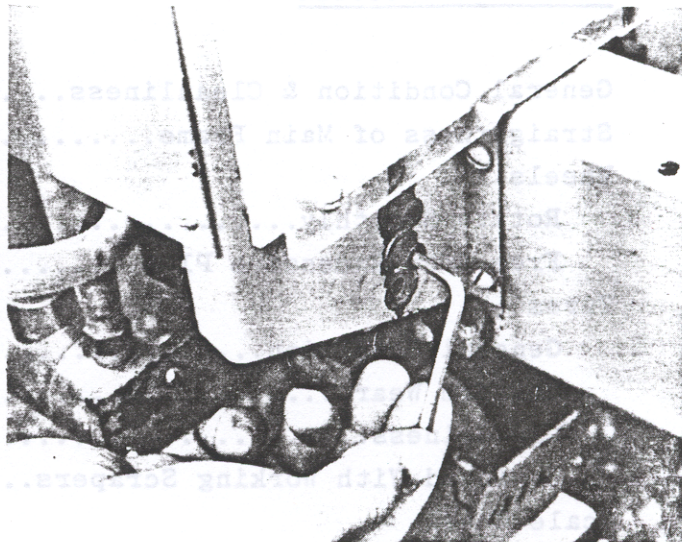


Figure 8

Report

5. Calibration and certification of the rolling straightedge shall be documented using the form shown in Figure 9. Units which are not in satisfactory condition, cannot be calibrated, or which will not maintain calibration during testing shall be rejected. A certification sticker, as shown in Figure 9 shall be affixed to the dial face of the approved unit.

Normal testing time is 1 hour.

LOUISIANA
DEPARTMENT OF
TRANSPORTATION & DEVELOPMENT
Calib. By

Figure 9

ROLLING STRAIGHTEDGE CERTIFICATION

Owner: _____

Tag ID Number: _____

Model: _____

Project Number: _____

Date: _____

General Inspection

Satisfactory Unsatisfactory

General Condition & Cleanliness..... ☐ ☐

Straightness of Main Frame..... ☐ ☐

Wheels

Rotate Smoothly..... ☐ ☐

Free From Excessive Play..... ☐ ☐

Tires

General Condition..... ☐ ☐

Uniform Wear..... ☐ ☐

Cleanliness..... ☐ ☐

Equipped With Working Scrapers..... ☐ ☐

Scale Wheel

Clean and Free From Buildup..... ☐ ☐

Gears Move Freely..... ☐ ☐

Gear Drive Not Excessively Worn/Loose..... ☐ ☐

Battery Charged..... ☐ ☐

Solenoids & Tanks in Proper Working Condition..... ☐ ☐

Dial Face

Indicates Movement in 1/16-in. Increments..... ☐ ☐

Cleanliness..... ☐ ☐

Pointer Shaft Moves Freely..... ☐ ☐

Calibration

Calibrated For:			Portland Cement Concrete			Remarks
	Asphaltic	Concrete		Yes	No	
1/8"	<input type="checkbox"/>	<input type="checkbox"/>	1/8"	<input type="checkbox"/>	<input type="checkbox"/>	
3/16"	<input type="checkbox"/>	<input type="checkbox"/>	1/4"	<input type="checkbox"/>	<input type="checkbox"/>	
1/4"	<input type="checkbox"/>	<input type="checkbox"/>	1/2"	<input type="checkbox"/>	<input type="checkbox"/>	
3/8"	<input type="checkbox"/>	<input type="checkbox"/>				

Solenoids Set At: _____

Calibrated Satisfactorily: ☐ Yes ☐ No

Calibrated By: _____

Approved: ☐ Disapproved: ☐